FIGURE 1

```
GGCGTCCGCGCACACCTCCCCGCGCCGCCGCCGCCACCGCCCGCACTCCGCCGCCTCTGCCCGCAACCGCT
GAGCCATCCATGGGGGTCGCGGGCCGCAACCGTCCCGGGGCGGCCTGGGCGGTGCTGCTGCTGCTGCTGCT
GCTGCCGCCACTGCTGCTGCTGGCGGGGGCCGTCCCGCCGGGTCGGGGCCGTGCCGCGGGGCCGCAGGAGG
ATGTAGATGAGTGTGCCCAAGGGCTAGATGACTGCCATGCCGACGCCCTGTGTCAGAACACACCCACCTCC
TACAAGTGCTCCTGCAAGCCTGGCTACCAAGGGGAAGGCAGGCAGTGTGAGGACATCGATGAATGTGGAAA
TGAGCTCAATGGAGGCTGTGTCCATGACTGTTTGAATATTCCAGGCAATTATCGTTGCACTTGTTTTGATG
GCTTCATGTTGGCTCATGACGGTCATAATTGTCTTGATGTGGACGAGTGCCTGGAGAACAATGGCGGCTGC
CAGCATACCTGTGTCAACGTCATGGGGAGCTATGAGTGCTGCTGCAAGGAGGGGTTTTTCCTGAGTGACAA
TCAGCACACCTGCATTCACCGCTCGGAAGAGGGCCTGAGCTGCATGAATAAGGATCACGGCTGTAGTCACA
TCTGCAAGGAGGCCCCAAGGGGCAGCGTCGCCTGTGAGTGCAGGCCTGGTTTTGAGCTGGCCAAGAACCAG
AGAGACTGCATCTTGACCTGTAACCATGGGAACGGTGGGTGCCAGCACTCCTGTGACGATACAGCCGATGG
CCCAGAGTGCAGCTGCCATCCACAGTACAAGATGCACACAGATGGGAGGAGCTGCCTTGAGCGAGAGGACA
CTGTCCTGGAGGTGACAGAGAGCAACACCACATCAGTGGTGGATGGGGATAAACGGGTGAAACGGCGGCTG
CTCATGGAAACGTGTGCTGTCAACAATGGAGGCTGTGACCGCACCTGTAAGGATACTTCGACAGGTGTCCA
CTGCAGTTGTCCTGTTGGATTCACTCTCCAGTTGGATGGGAAGACATGTAAAGATATTGATGAGTGCCAGA
CCCGCAATGGAGGTTGTGATCATTTCTGCAAAAACATCGTGGGCAGTTTTGACTGCGGCTGCAAGAAAGGA
TTTAAATTATTAACAGATGAGAAGTCTTGCCAAGATGTGGATGAGTGCTCTTTGGATAGGACCTGTGACCA
CAGCTGCATCAACCACCCTGGCACATTTGCTTGTGCTTGCAACCGAGGGTACACCCTGTATGGCTTCACCC
ACTGTGGAGACACCAATGAGTGCAGCATCAACAACGGAGGCTGTCAGCAGGTCTGTGTGAACACAGTGGGC
AGCTATGAATGCCAGTGCCACCCTGGGTACAAGCTCCACTGGAATAAAAAAGACTGTGTGGAAGTGAAGGG
GCTCCTGCCCACAAGTGTGTCACCCCGTGTGTCCCTGCACTGCGGTAAGAGTGGTGGAGGAGACGGGTGCT
TCCTCAGATGTCACTCTGGCATTCACCTCTCTTCAGATGTCACCACCATCAGGACAAGTGTAACCTTTAAG
CTAAATGAAGGCAAGTGTAGTTTGAAAAATGCTGAGCTGTTTCCCGAGGGTCTGCGACCAGCACTACCAGA
GAAGCACAGCTCAGTAAAAGAGAGCTTCCGCTACGTAAACCTTACATGCAGCTCTGGCAAGCAAGTCCCAG
GAGCCCCTGGCCGACCAAGCACCCCTAAGGAAATGTTTATCACTGTTGAGTTTGAGCTTGAAACTAACCAA
AAGGAGGTGACAGCTTCTTGTGACCTGAGCTGCATCGTAAAGCGAACCGAGAAGCGGCTCCGTAAAGCCAT
CCGCACGCTCAGAAAGGCCGTCCACAGGGAGCAGTTTCACCTCCAGCTCTCAGGCATGAACCTCGACGTGG
CTAAAAAGCCTCCCAGAACATCTGAACGCCAGGCAGAGTCCTGTGGAGTGGGCCAGGGTCATGCAGAAAAC
CAATGTGTCAGTTGCAGGGCTGGGACCTATTATGATGGAGCACGAGAACGCTGCATTTTATGTCCAAATGG
AACCTTCCAAAATGAGGAAGGACAAATGACTTGTGAACCATGCCCAAGACCAGGAAATTCTGGGCGCCTGA
AGACCCCAGAAGCTTGGAATATGTCTGAATGTGGAGGTCTGTGTCAACCTGGTGAATATTCTGCAGATGGC
TTTGCACCTTGCCAGCTCTGTGCCCTGGGCACGTTCCAGCCTGAAGCTGGTCGAACTTCCTGCTTCCCCTG
TGGAGGAGGCCTTGCCACCAAACATCAGGGAGCTACTTCCTTTCAGGACTGTGAAACCAGAGTTCAATGTT
CACCTGGACATTTCTACAACACCACCACTCACCGATGTATTCGTTGCCCAGTGGGAACATACCAGCCTGAA
TTTGGAAAAAATAATTGTGTTTCTTGCCCAGGAAATACTACGACTGACTTTGATGGCTCCACAAACATAAC
CCAGTGTAAAAACAGAAGATGTGGAGGGGAGCTGGGAGATTTCACTGGGTACATTGAATCCCCAAACTACC
CAGGCAATTACCCAGCCAACACCGAGTGTACGTGGACCATCAACCCACCCCCCAAGCGCCGCATCCTGATC
GTGGTCCCTGAGATCTTCCTGCCCATAGAGGACGACTGTGGGGACTATCTGGTGATGCGGAAAACCTCTTC
ATCCAATTCTGTGACAACATATGAAACCTGCCAGACCTACGAACGCCCCATCGCCTTCACCTCCAGGTCAA
AGAAGCTGTGGATTCAGTTCAAGTCCAATGAAGGGAACAGCGCTAGAGGGTTCCAGGTCCCATACGTGACA
TATGATGAGGACTACCAGGAACTCATTGAAGACATAGTTCGAGATGGCAGGCTCTATGCATCTGAGAACCA
TCAGGAAATACTTAAGGATAAGAAACTTATCAAGGCTCTGTTTGATGTCCTGGCCCATCCCCAGAACTATT
TCAAGTACACAGCCCAGGAGTCCCGAGAGATGTTTCCAAGATCGTTCATCCGATTGCTACGTTCCAAAGTG
TCCAGGTTTTTGAGACCTTACAAATGACTCAGCCCACGTGCCACTCAATACAAATGTTCTGCTATAGGGTT
GGTGGGACAGAGCTGTCTTCCTTCTGCATGTCAGCACAGTCGGGTATTGCTGCCTCCCGTATCAGTGACTC
ATTAGAGTTCAATTTTTATAGATAATACAGATATTTTGGTAAATTGAACTTGGTTTTTCTTTCCCAGCATC
GTGGATGGTGACTGAGAATGGCTTTGAGTGGCATCAGCTTCTCACTGCTGTGGGCGGATGTCTTGGATAGA
TCACGGGCTGGCTGAGCTGGACTTTGGTCAGCCTAGGTGAGACTCACCTGTCCTTCTGGGGTCTTACTCCT
CCTCAAGGAGTCTGTAGTGGAAAGGAGGCCACAGAATAAGCTGCTTATTCTGAAACTTCAGCTTCCTCTAG
CCCGGCCCTCTCTAAGGGAGCCCTCTGCACTCGTGTGCAGGCTCTGACCAGGCAGAACAGGCAAGAGGGGA
GGGAAGGAGACCCCTGCAGGCTCCCTCCACCCACCTTGAGACCTGGGAGGACTCAGTTTCTCCACAGCCTT
CTCCAGCCTGTGTGATACAAGTTTGATCCCAGGAACTTGAGTTCTAAGCAGTGCTCGTGAAAAAAAAAAGC
AGAAAGAATTAGAAATAAATAAAAACTAAGCACTTCTGGAGACAT
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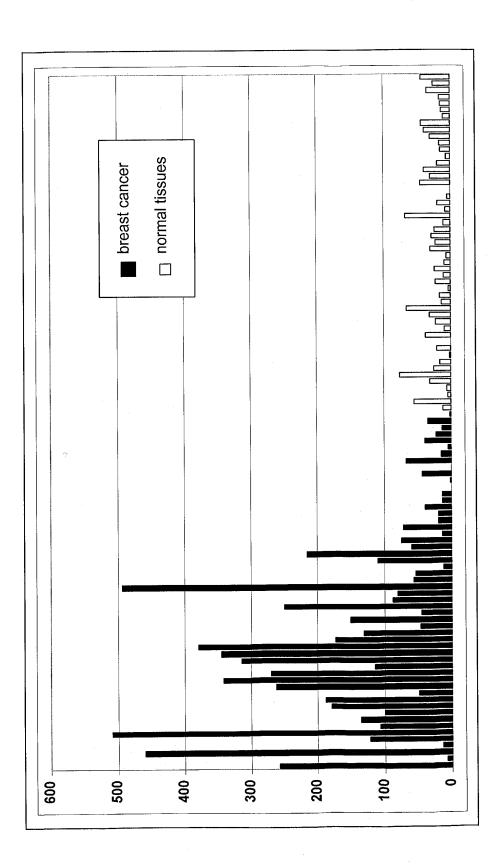
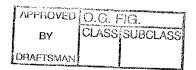# FIGURE 2

MGVAGRNRPGAAWAVLLLLLLLPPLLLLLAGAVPPGRGRAAGPQEDVDECAQGLDDCHADALCQNTPTSYKC
SCKPGYQGEGRQCEDIDECGNELNGGCVHDCLNIPGNYRCTCFDGFMLAHDGHNCLDVDECLENNGGCQHT
CVNVMGSYECCCKEGFFLSDNQHTCIHRSEEGLSCMNKDHGCSHICKEAPRGSVACECRPGFELAKNQRDC
ILTCNHGNGGCQHSCDDTADGPECSCHPQYKMHTDGRSCLEREDTVLEVTESNTTSVVDGDKRVKRRLLME
TCAVNNGGCDRTCKDTSTGVHCSCPVGFTLQLDGKTCKDIDECQTRNGGCDHFCKNIVGSFDCGCKKGFKL
LTDEKSCQDVDECSLDRTCDHSCINHPGTFACACNRGYTLYGFTHCGDTNECSINNGGCQQVCVNTVGSYE
CQCHPGYKLHWNKKDCVEVKGLLPTSVSPRVSLHCGKSGGGDGCFLRCHSGIHLSSDVTTIRTSVTFKLNE
GKCSLKNAELFPEGLRPALPEKHSSVKESFRYVNLTCSSGKQVPGAPGRPSTPKEMFITVEFELETNQKEV
TASCDLSCIVKRTEKRLRKAIRTLRKAVHREQFHLQLSGMNLDVAKKPPRTSERQAESCGVGQGHAENQCV
SCRAGTYYDGARERCILCPNGTFQNEEGQMTCEPCPRPGNSGALKTPEAWNMSECGGLCQPGEYSADGFAP
CQLCALGTFQPEAGRTSCFPCGGGLATKHQGATSFQDCETRVQCSPGHFYNTTTHRCIRCPVGTYQPEFGK
NNCVSCPGNTTTDFDGSTNITQCKNRRCGGELGDFTGYIESPNYPGNYPANTECTWTINPPPKRRILIVVP
EIFLPIEDDCGDYLVMRKTSSSNSVTTYETCQTYERPIAFTSRSKKLWIQFKSNEGNSARGFQVPYVTYDE
DYQELIEDIVRDGRLYASENHQEILKDKKLIKALFDVLAHPQNYFKYTAQESREMFPRSFIRLLRSKVSRF
LRPYK

FIGURE 3

FIGURE 4A

```
BCO2_human   MGVAGRNRPGAAWAVLLLLLLLLPPLLLLLAGAVPPGRGRAAGPQEDVDECAQGLDDCHADA
BCO2_mouse   MGVAGCGRPREARALLLLLLLLPP--LLAAAVPPDRGLTNGPSEDVDECAQGLDDCHADA
             **** .**   * *:********  ***.****.**  :  **.****************


BCO2_human   LCQNTPTSYKCSCKPGYQGEGRQCEDIDECGNELNGGCVHDCLNIPGNYRCTCFDGFMLA
BCO2_mouse   LCQNTPTSYKCSCKPGYQGEGRQCEDMDECDNTLNGGCVHDCLNIPGNYRCTCFDGFMLA
             **************************:***.*  ************************


BCO2_human   HDGHNCLDVDECLENNGGCQHTCVNVMGSYECCCKEGFFLSDNQHTCIHRSEEGLSCMNK
BCO2_mouse   HDGHNCLDMDECLENNGGCQHICTNVIGSYECRCKEGFFLSDNQHTCIHRSEEGLSCMNK
             ********.************** *.**.*****  ************************


BCO2_human   DHGCSHICKEAPRGSVACECRPGFELAKNQRDCILTCNHGNGGCQHSCDDTADGPECSCH
BCO2_mouse   DHGCGHICKEAPRGSVACECRPGFELAKNQKDCILTCNHGNGGCQHSCEDTAEGPECSCH
             ****.***********************:*.************************.***:*******


BCO2_human   PQYKMHTDGRSCLEREDTVLEVTESNTTSVVDGDKRVKRRLLMETCAVNNGGCDRTCKDT
BCO2_mouse   PRYRLHADGRSCLEQEGTVLEGTESNATSVADGDKRVKRRLLMETCAVNNGGCDRTCKDT
             *:*::*:*******:*.**** ****:***.****************************


BCO2_human   STGVHCSCPVGFTLQLDGKTCKDIDECQTRNGGCDHFCKNIVGSFDCGCKKGFKLLTDEK
BCO2_mouse   STGVHCSCPTGFTLQVDGKTCKDIDECQTRNGGCNHFCKNTVGSFDCSCKKGFKLLTDEK
             *********.*****:******************:*****.*****.************


BCO2_human   SCQDVDECSLDRTCDHSCINHPGTFACACNRGYTLYGFTHCGDTNECSINNGGCQQVCVN
BCO2_mouse   SCQDVDECSLERTCDHSCINHPGTFICACNPGYTLYSFTHCGDTNECSVNNGGCQQVCIN
             **********:***************  ****  *****.************.*********:*


BCO2_human   TVGSYECQCHPGYKLHWNKKDCVEVKGLLPTSVSPRVSLHCGKSGGGDGCFLRCHSGIHL
BCO2_mouse   TVGSYECQCHPGFKLHWNKKDCVEVKGFPPTSMTPRVSLHCGKSGGGDRCFLRCRSGIHL
             ************.****************:  ***::**************  *****:*****


BCO2_human   SSDVTTIRTSVTFKLNEGKCSLKNAELFPEGLRPALPEKHSSVKESFRYVNLTCSSGKQV
BCO2_mouse   SSDVVTVRTSVTFKLNEGKCSLQKAKLSPEGLRPALPERHSSVKESFQYANLTCSPGKQV
             ****.*:*************:*.* **********:********.* ***** .****


BCO2_human   PGAPGRPSTPKEMFITVEFELETNQKEVTASCDLSCIVKRTEKRLRKAIRTLRKAVHREQ
BCO2_mouse   PGALGRLNAPKEMFITVEFERETYEKEVTASCNLSCVVKRTEKRLRKALRTLRKAAHREQ
             *** **  .:*********** **  :*******:***.************:***::* .****


BCO2_human   FHLQLSGMNLDVAKKPPRTSERQAESCGVGQGHAENQCVSCRAGTYYDGARERCILCPNG
BCO2_mouse   FHLQLSGMDLDMAKTPSRVSGQHEETCGVGQGHEESQCVSCRAGTYYDGSQERCILCPNG
             ********:**:**.*.*.* ::  *:******* *.*************.:********


BCO2_human   TFQNEEGQMTCEPCPRPGNSGALKTPEAWNMSECGGLCQPGEYSADGFAPCQLCALGTFQ
BCO2_mouse   TFQNEEGQVTCEPCPRPENLGSLKISEAWNVSDCGGLCQPGEYSANGFAPCQLCALGTFQ
             ********:********* * *:**  .****:*.************.*:***************


BCO2_human   PEAGRTSCFPCGGGLATKHQGATSFQDCETRVQCSPGHFYNTTTHRCIRCPVGTYQPEFG
BCO2_mouse   PDVGRTSCLSCGGGLPTKHLGATSFQDCETRVQCSPGHFYNTTTHRCIRCPLGTYQPEFG
             *:.*****:.*****.*** ***********************************:********


BCO2_human   KNNCVSCPGNTTTDFDGSTNITQCKNRRCGGELGDFTGYIESPNYPGNYPANTECTWTIN
BCO2_mouse   KNNCVSCPGNTTTDFDGSTNITQCKNRKCGGELGDFTGYIESPNYPGNYPANSECTWTIN
             ***************************:********************************:*******


BCO2_human   PPPKRRILIVVPEIFLPIEDDCGDYLVMRKTSSSNSVTTYETCQTYERPIAFTSRSKKLW
BCO2_mouse   PPPKRRILIVVPEIFLPIEDDCGDYLVMRKTSSSNSVTTYETCQTYERPIAFTSRSKKLW
             ************************************************************
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```
BCO2_human    IQFKSNEGNSARGFQVPYVTYDEDYQELIEDIVRDGRLYASENHQEILKDKKLIKALFDV
BCO2_mouse    IQFKSNEGNSARGFQVPYVTYDEDYQELIEDIVRDGRLYASENHQEILKDKKLIKALFDV
              ************************************************************

BCO2_human    LAHPQNYFKYTAQESREMFPRSFIRLLRSKVSRFLRPYK
BCO2_mouse    LAHPQNYFKYTAQESREMFPRSFIRLLRSKVSRFLRPYK
              ***************************************
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FIGURE 4B